



## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 8	5'-CCTACTAG <u>G</u> TTCTCATC-3' (133-1)
SEQ ID NO.: 9	5'-CCTACTAG <u>C</u> TTCTCATC-3' (139-2)
SEQ ID NO.: 10	5'-CCTACTAX <u>G</u> TTCTCATC-3' (133-2)
SEQ ID NO.: 11	5'-CCTACTX <u>G</u> GTTCATC-3' (139-3)
SEQ ID NO.: 12	5'-CCTAC <u>X</u> AGCGTTCTCATC-3' (133-3)
SEQ ID NO.: 13	5'-CCTAXTAG <u>C</u> GTTCATC-3' (139-4)
SEQ ID NO.: 14	5'-CCT <u>X</u> TAGCGTTCTCATC-3' (133-4)
SEQ ID NO.: 15	5'-CCT <u>X</u> CTAG <u>G</u> TTCTCATC-3' (145-10a)
SEQ ID NO.: 16	5'-CCTACTAG <u>G</u> XTCTCATC-3' (133-5)
SEQ ID NO.: 17	5'-CCTACTAG <u>C</u> TXCTCATC-3' (139-7)
SEQ ID NO.: 18	5'-CCTACTAG <u>G</u> TTXTCATC-3' (133-6)
SEQ ID NO.: 19	5'-CCTACTAG <u>C</u> TTCXCATC-3' (139-8)
SEQ ID NO.: 20	5'-CCT <u>X</u> XTAG <u>G</u> TTCTCATC-3' (133-12)
SEQ ID NO.: 21	5'-XXTACTAG <u>C</u> GTTCATC-3' (139-6)
SEQ ID NO.: 22	5'-CCTACTAG <u>C</u> GTTCXXATC-3' (139-9)
SEQ ID NO.: 23	5'-CCT <u>X</u> CTX <u>G</u> GTTCATC-3' (145-10b)

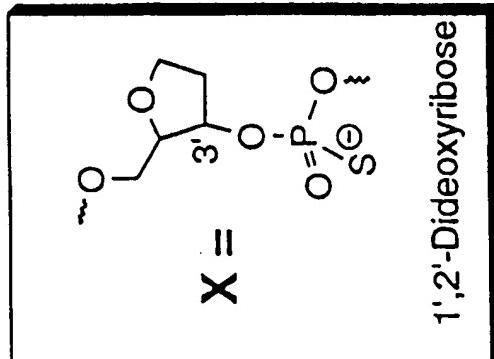


FIG. 1A

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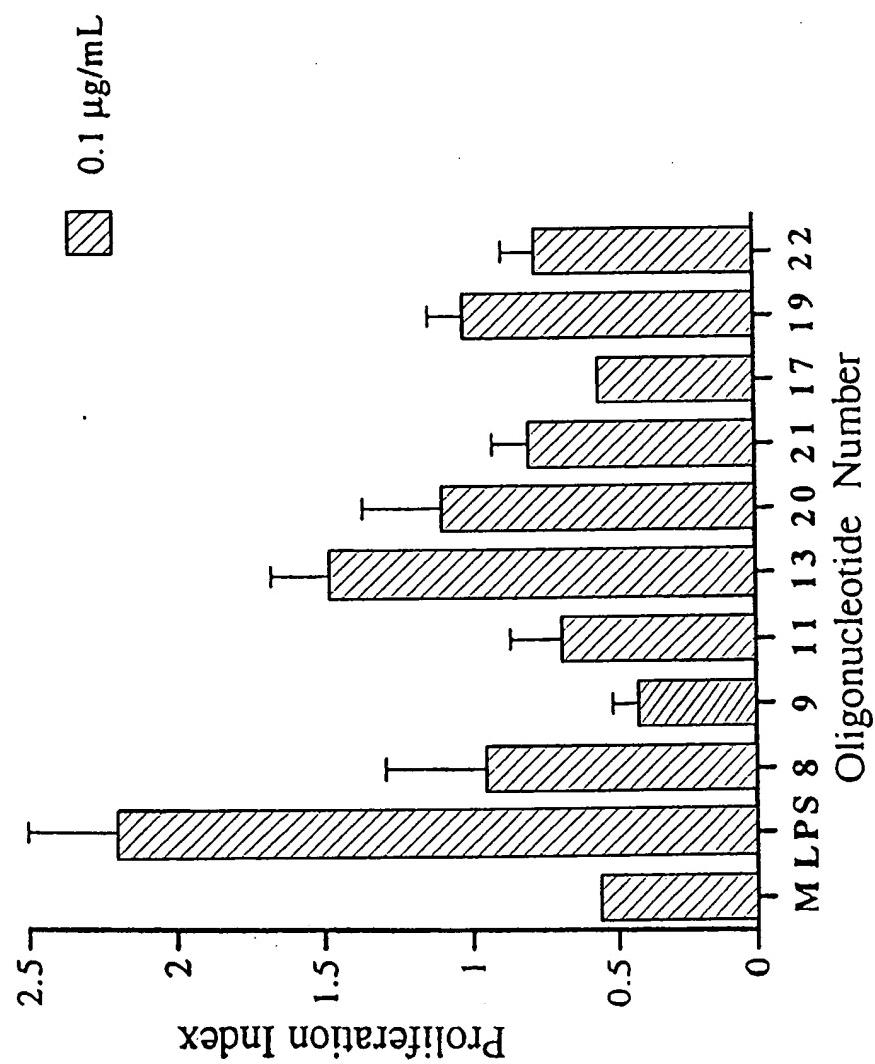


FIG. 1B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 8	5'-CCTACTAG <u>G</u> TCTCATC-3' (133-1)
SEQ ID NO.: 9	5'-CCTACTAG <u>C</u> TTCTCATC-3' (139-2)
SEQ ID NO.: 10	5'-CCTACTAX <u>G</u> TTCTCATC-3' (133-2)
SEQ ID NO.: 11	5'-CCTACTX <u>G</u> GTCTCATC-3' (139-3)
SEQ ID NO.: 12	5'-CCTAC <u>X</u> AGGGTCTCATC-3' (133-3)
SEQ ID NO.: 13	5'-CCTAXTAG <u>G</u> TTCTCATC-3' (139-4)
SEQ ID NO.: 14	5'-CCTX <u>T</u> AGGGTCTCATC-3' (133-4)
SEQ ID NO.: 15	5'-CCTX <u>T</u> AG <u>G</u> TTCTCATC-3' (145-10a)
SEQ ID NO.: 16	5'-CCTACTAG <u>G</u> XTCTCATC-3' (133-5)
SEQ ID NO.: 17	5'-CCTACTAG <u>G</u> TXCTCATC-3' (139-7)
SEQ ID NO.: 18	5'-CCTACTAG <u>G</u> TT <u>X</u> TCATC-3' (133-6)
SEQ ID NO.: 19	5'-CCTACTAG <u>G</u> TT <u>C</u> TCATC-3' (139-8)
SEQ ID NO.: 20	5'-CCT <u>X</u> XTAG <u>G</u> TTCTCATC-3' (133-12)
SEQ ID NO.: 21	5'-XXTACTAG <u>G</u> TTCTCATC-3' (139-6)
SEQ ID NO.: 22	5'-CCTACTAG <u>G</u> TT <u>CXX</u> TCATC-3' (139-9)
SEQ ID NO.: 23	5'-CCTX <u>T</u> AG <u>G</u> TTCTCATC-3' (145-10b)

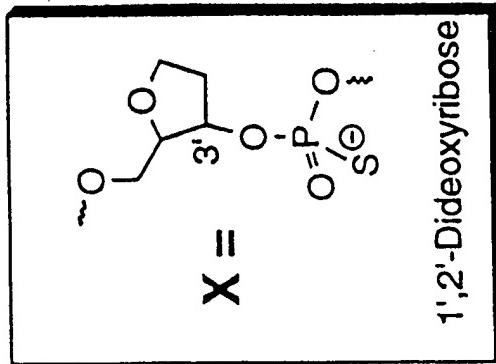


FIG. 2A

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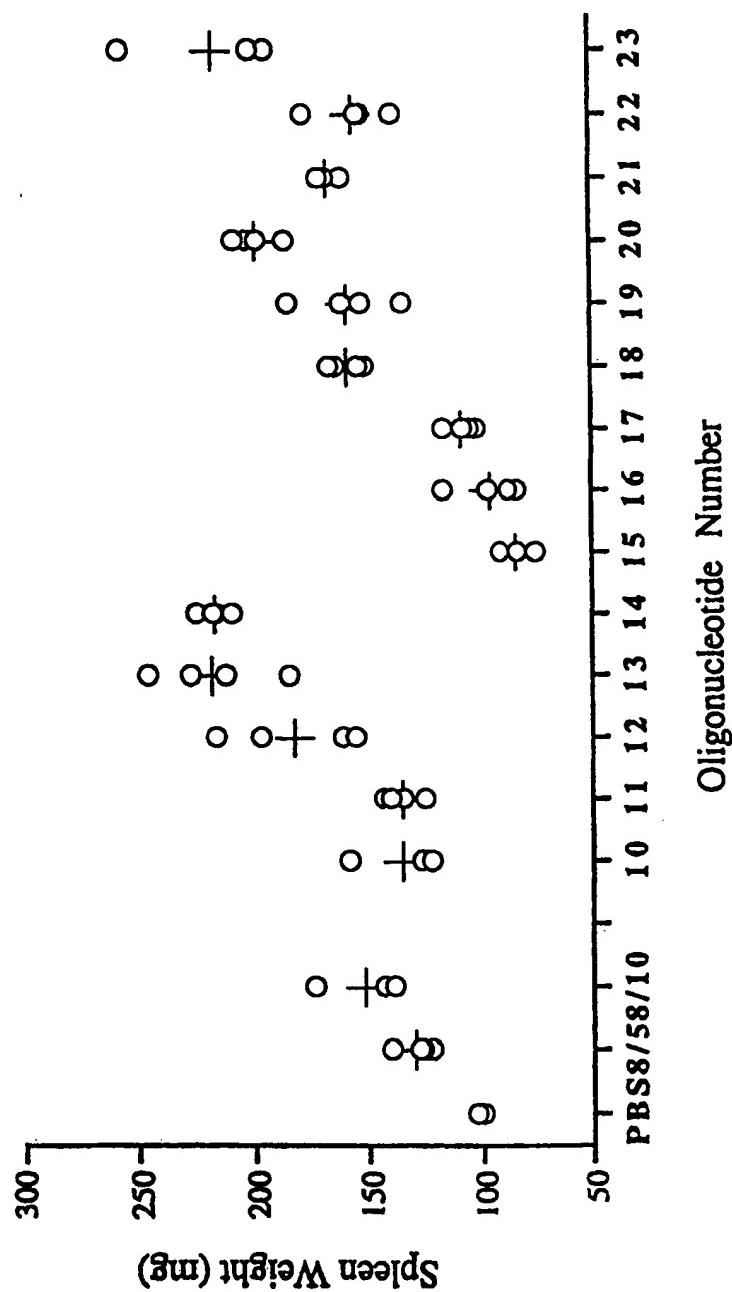


FIG. 2B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGAC <u>G</u> TCTCTGT-3' (131-1)
SEQ ID NO.: 105	5'-CTATCTGAXGTCTCTGT-3' (131-13)
SEQ ID NO.: 106	5'-CTATCTGXCGTCTCTGT-3' (131-2)
SEQ ID NO.: 107	5'-CTATCXGACGTCTCTGT-3' (131-3)
SEQ ID NO.: 108	5'-CTAXCTGACGTCTCTGT-3' (131-4)
SEQ ID NO.: 109	5'-CTATCTGACGXCTCTGT-3' (131-5)
SEQ ID NO.: 110	5'-CTATCTGACGTTCTGT-3' (131-6)

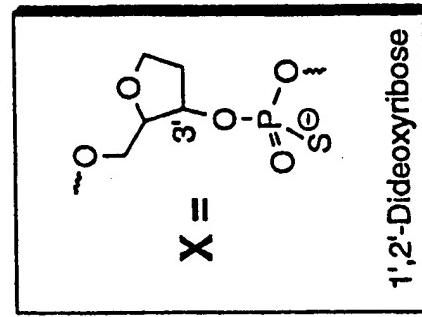


FIG. 3A

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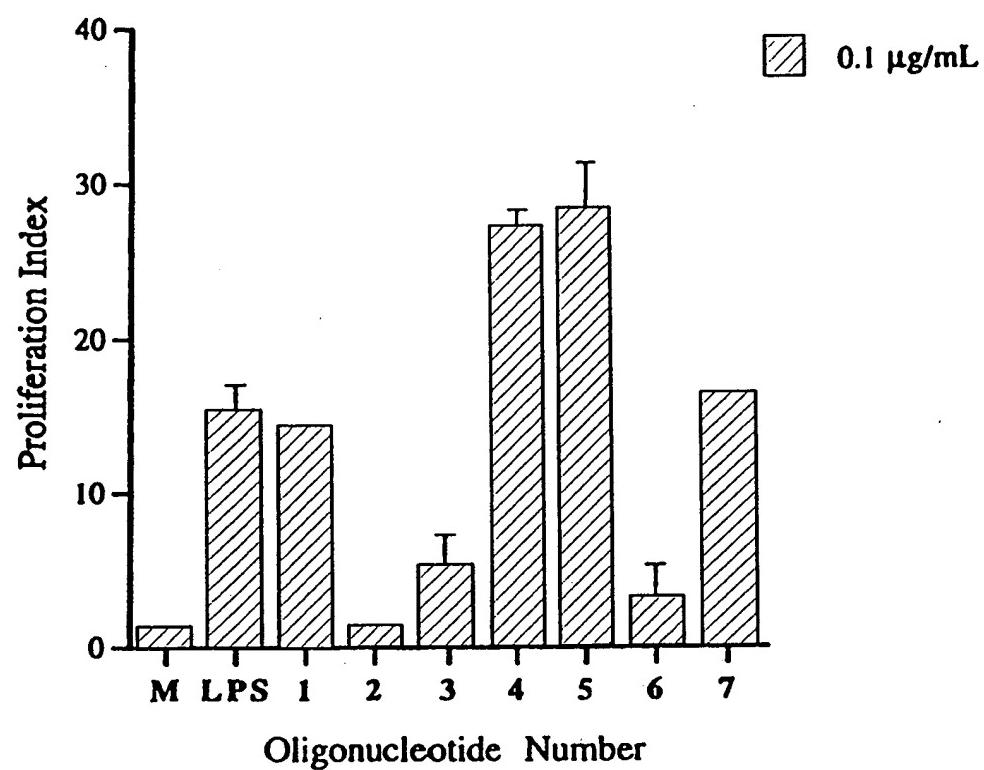


FIG. 3B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGACGTCTCTGT-3' (131-1)
SEQ ID NO.: 105	5'-CTATCTGAXGTTCTCTGT-3' (131-13)
SEQ ID NO.: 106	5'-CTATCTGXCGTTCTCTGT-3' (131-2)
SEQ ID NO.: 107	5'-CTATCXGACGTTCTCTGT-3' (131-3)
SEQ ID NO.: 108	5'-CTAXCTGACGTTCTCTGT-3' (131-4)
SEQ ID NO.: 109	5'-CTATCTGACGXCTCTGT-3' (131-5)
SEQ ID NO.: 110	5'-CTATCTGACGTTCTCTGT-3' (131-6)

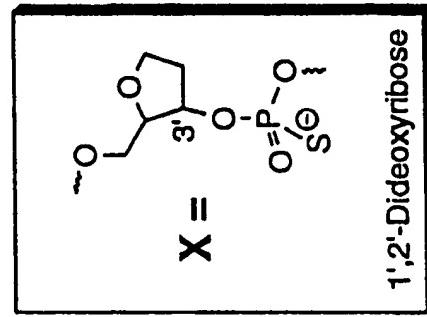


FIG. 4A

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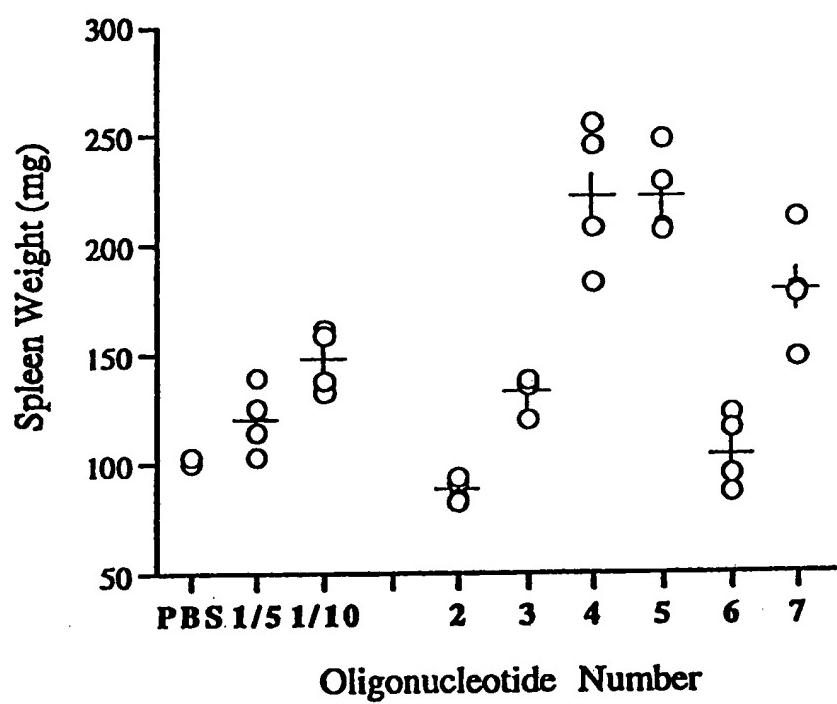


FIG. 4B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 8	5'-CCTACTAGCGTTCTCATC-3'
SEQ ID NO.: 24	5'-CCTACTAGCXTTCTCATC-3'
SEQ ID NO.: 25	5'-CCTACTXGCGTTCTCATC-3'
SEQ ID NO.: 26	5'-CCTAXTAGCGTTCTCATC-3'
SEQ ID NO.: 27	5'-CCTXXTAGCGTTCTCATC-3'
SEQ ID NO.: 28	5'-XXTACTAGCGTTCTCATC-3'
SEQ ID NO.: 29	5'-CCTACTAGGTXCTCATC-3'
SEQ ID NO.: 30	5'-CCTACTAGGTTCXCATC-3'
SEQ ID NO.: 31	5'-CCTACTAGCGTTCXCATC-3'
SEQ ID NO.: 1	5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 32	5'-CTATCTGXCGTTCTCTGT-3'
SEQ ID NO.: 33	5'-CTATCXGACGTTCTCTGT-3'
SEQ ID NO.: 34	5'-CTAXCTGACGTTCTCTGT-3'
131-1	131-1
137-2	
137-3	
137-4	

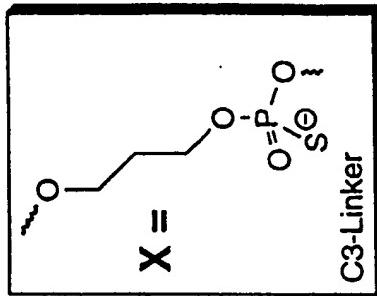


FIG. 5A

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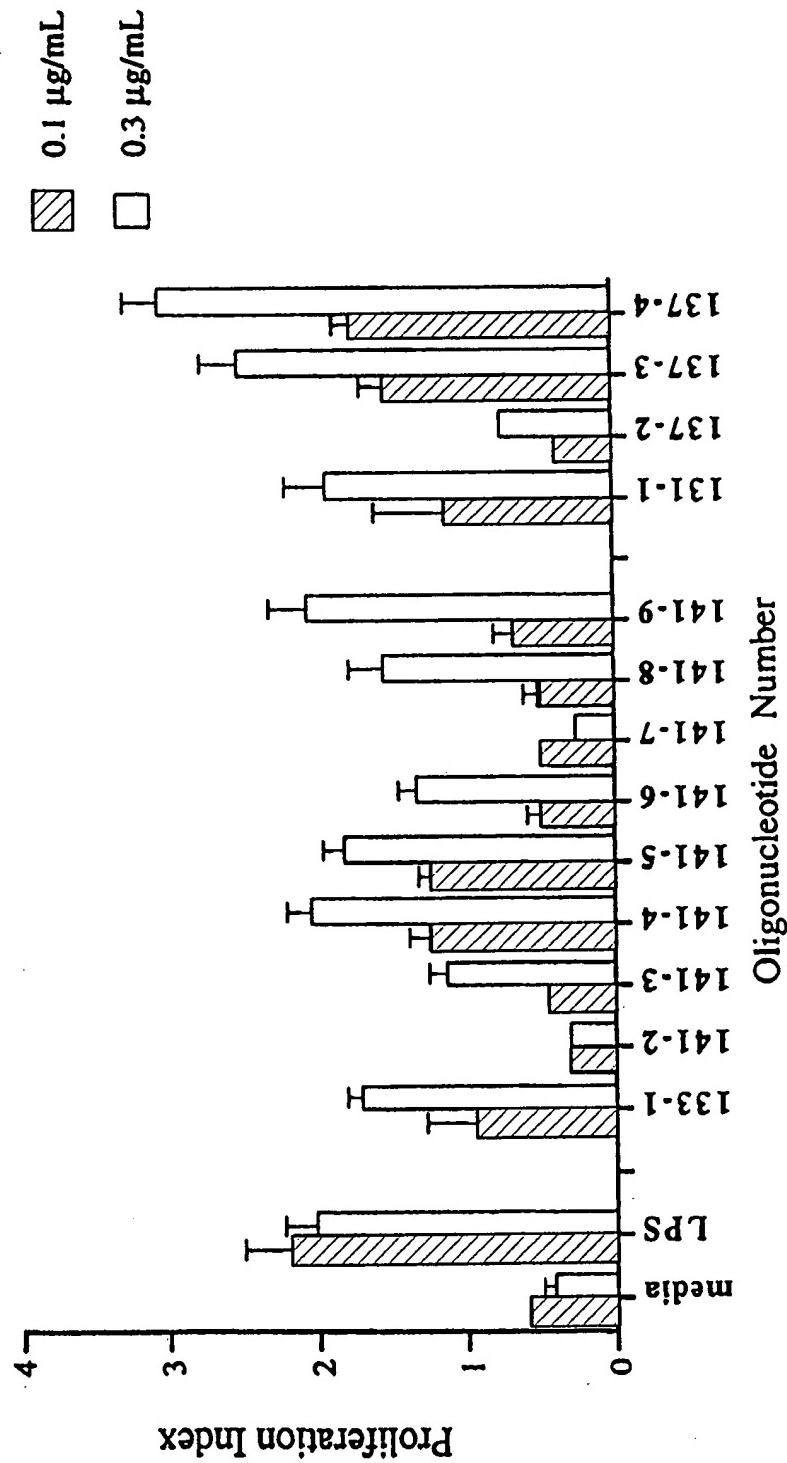


FIG. 5B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 8	133-1 5'-CCTACTAGCGTTCTCATC-3'
SEQ ID NO.: 24	141-2 5'-CCTACTAGCXTTCTCATC-3'
SEQ ID NO.: 25	141-3 5'-CCTACTXGCGTTCTCATC-3'
SEQ ID NO.: 26	141-4 5'-CCTAXTAGCGTTCTCATC-3'
SEQ ID NO.: 27	141-5 5'-CCTXXTAGCGTTCTCATC-3'
SEQ ID NO.: 28	141-6 5'-XXTACTAGCGTXCTCATC-3'
SEQ ID NO.: 29	141-7 5'-CCTACTAGCGTTXCATC-3'
SEQ ID NO.: 30	141-8 5'-CCTACTAGCGTTCXATC-3'
SEQ ID NO.: 31	141-9 5'-CCTACTAGCGTTCXATC-3'
SEQ ID NO.: 1	131-1 5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 32	137-2 5'-CTATCTGXGCGTTCTCTGT-3'
SEQ ID NO.: 33	137-3 5'-CTATCXGACGTTCTCTGT-3'
SEQ ID NO.: 34	137-4 5'-CTAXCTGACGTTCTCTGT-3'

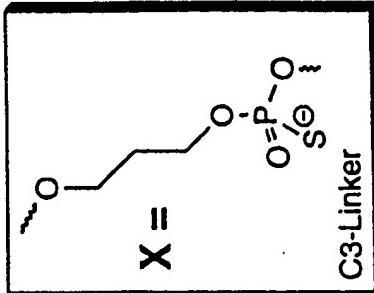
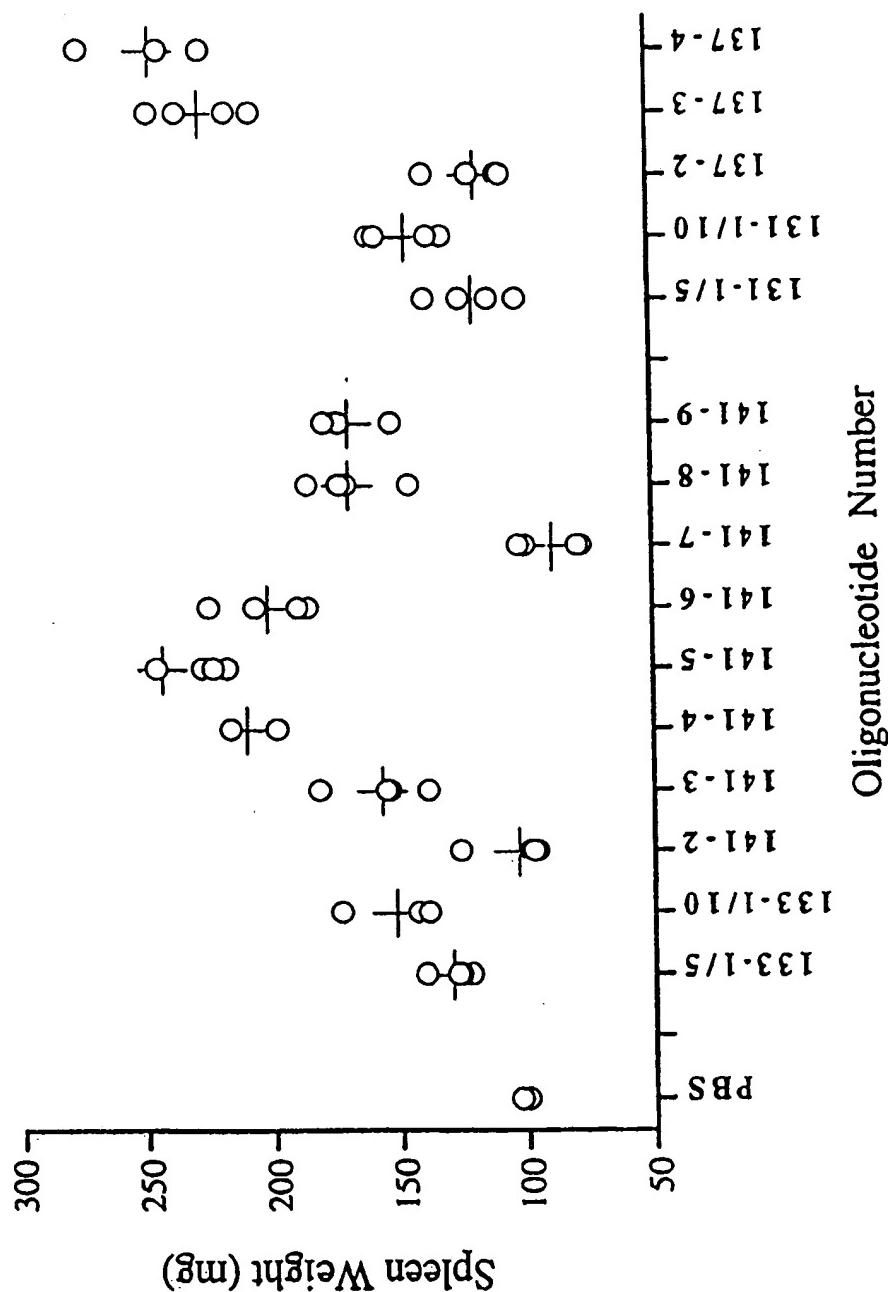


FIG. 6A

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGAC <u>G</u> TCTCTGT-3' (131-1)
SEQ ID NO.: 35	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
SEQ ID NO.: 36	5'-CTATCTGACGTTCXCTGT-3' (153-2)
SEQ ID NO.: 37	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
SEQ ID NO.: 38	5'-CTATCTGACGTTCYCTGT-3' (153-4)
SEQ ID NO.: 8	5'-CCTACTAGCGTTCTCATC-3' (133-1)
SEQ ID NO.: 39	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
SEQ ID NO.: 40	5'-CCTACTAGCGTTCXCATC-3' (155-2)
SEQ ID NO.: 41	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
SEQ ID NO.: 42	5'-CCTACTAGCGTTCYCATC-3' (155-4)

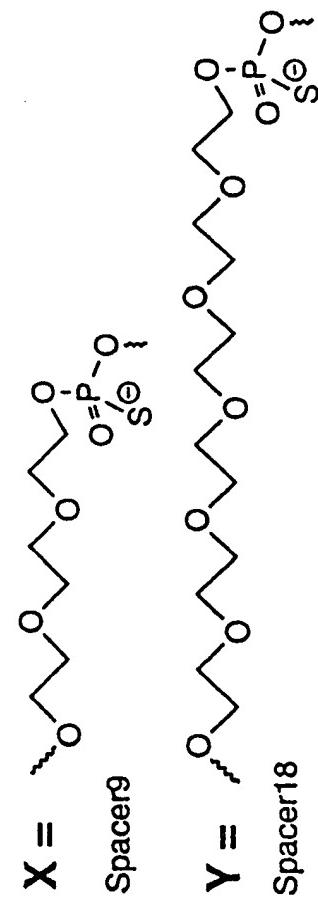


FIG. 7A

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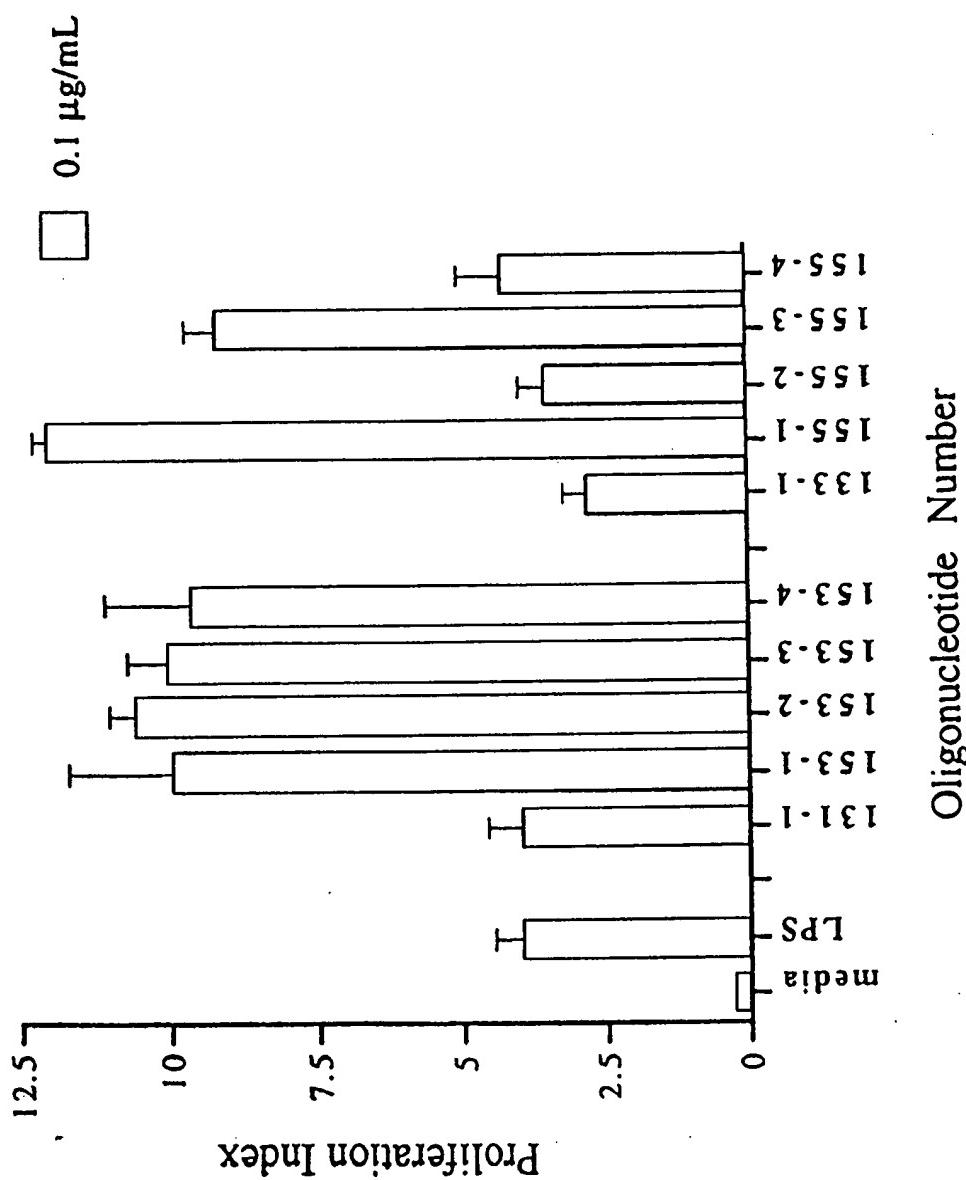


FIG. 7B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
SEQ ID NO.: 2	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
SEQ ID NO.: 3	5'-CTATCTGACGTTCXCTGT-3' (153-2)
SEQ ID NO.: 37	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
SEQ ID NO.: 38	5'-CTATCTGACGTTCYCTGT-3' (153-4)
SEQ ID NO.: 6	5'-CCTACTAGCGTTCTCATC-3' (133-1)
SEQ ID NO.: 7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
SEQ ID NO.: 8	5'-CCTACTAGCGTTCXCATC-3' (155-2)
SEQ ID NO.: 9	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
SEQ ID NO.: 10	5'-CCTACTAGCGTTCYCATC-3' (155-4)

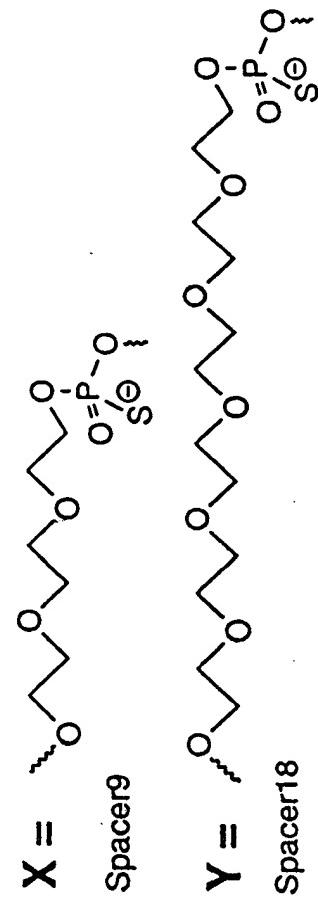


FIG. 8A

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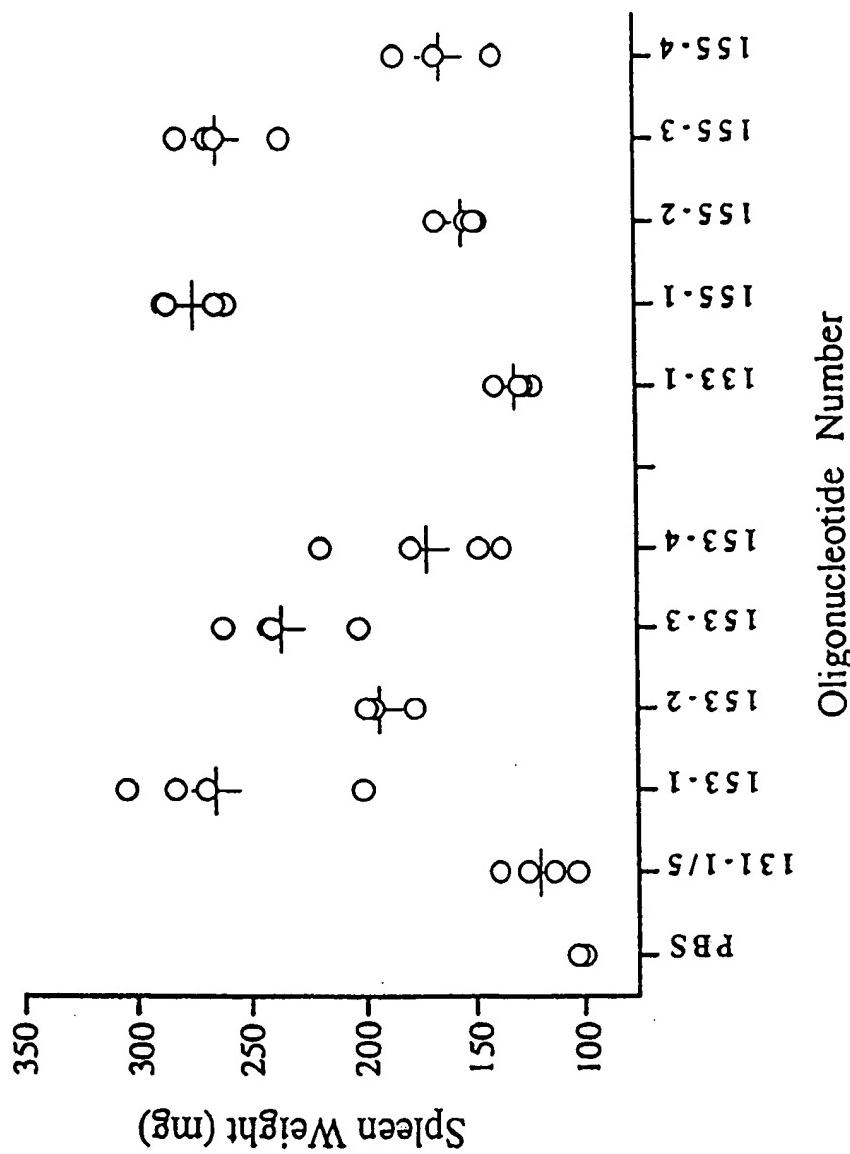


FIG. 8B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	1 5'-CTATCTGACGGTCTCTGT-3' (131-1)
SEQ ID NO.: 43	2 5'-CTATCTGXCGGTCTCTGT-3' (157-1)
SEQ ID NO.: 44	3 5'-CTATCTXACGGTCTCTGT-3' (157-2)
SEQ ID NO.: 45	4 5'-CTAXCTGACGGTCTCTGT-3' (157-3)
SEQ ID NO.: 46	5 5'-CTATCTGACGTXCTCTGT-3' (157-4)
SEQ ID NO.: 47	6 5'-CTATCTGACGGTTCXCTGT-3' (157-5)

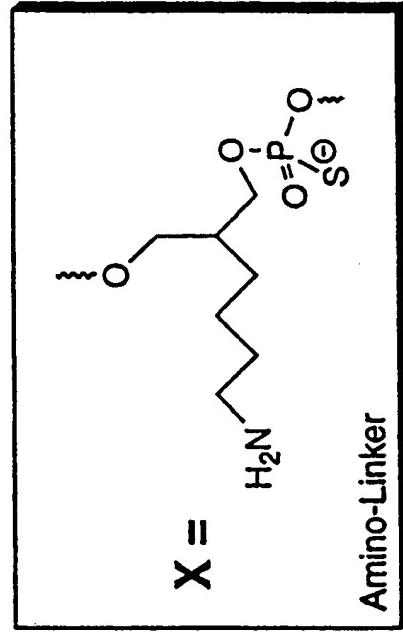


FIG. 9A

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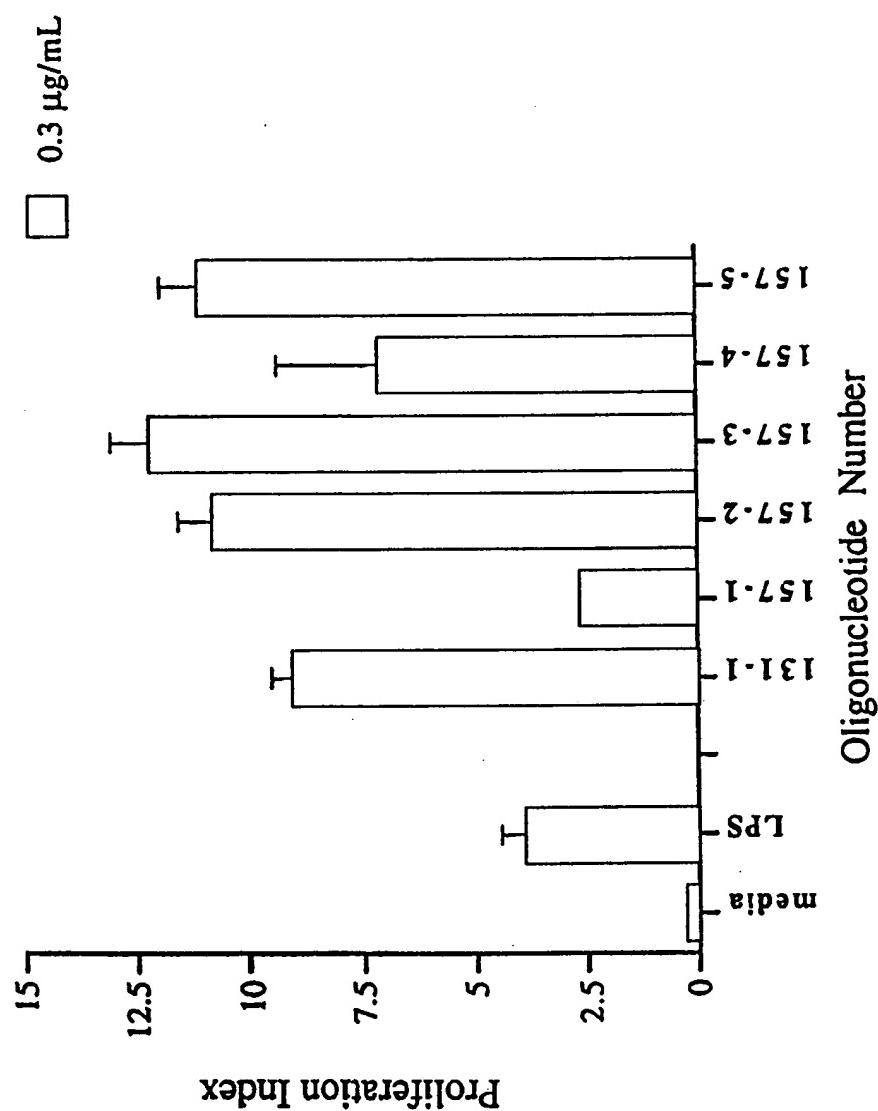


FIG. 9B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
SEQ ID NO.: 2	5'-CTATCTGXCGGTCTCTGT-3' (157-1)
SEQ ID NO.: 43	5'-CTATCTXACGTTCTCTGT-3' (157-2)
SEQ ID NO.: 44	5'-CTAXCTGACGTTCTCTGT-3' (157-3)
SEQ ID NO.: 45	5'-CTATCTGACGTXCTCTGT-3' (157-4)
SEQ ID NO.: 46	5'-CTATCTGACGTTCXCTGT-3' (157-5)
SEQ ID NO.: 47	
SEQ ID NO.: 6	

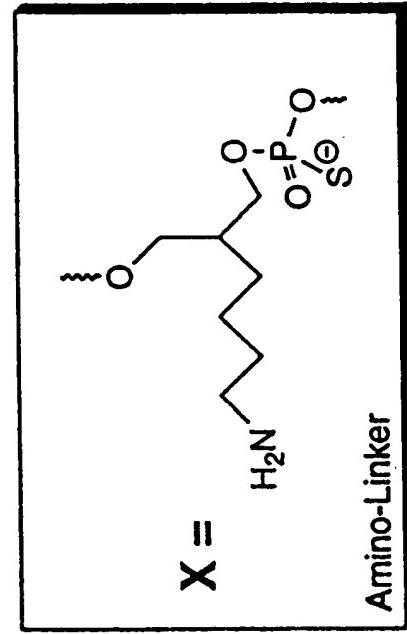


FIG. 10A

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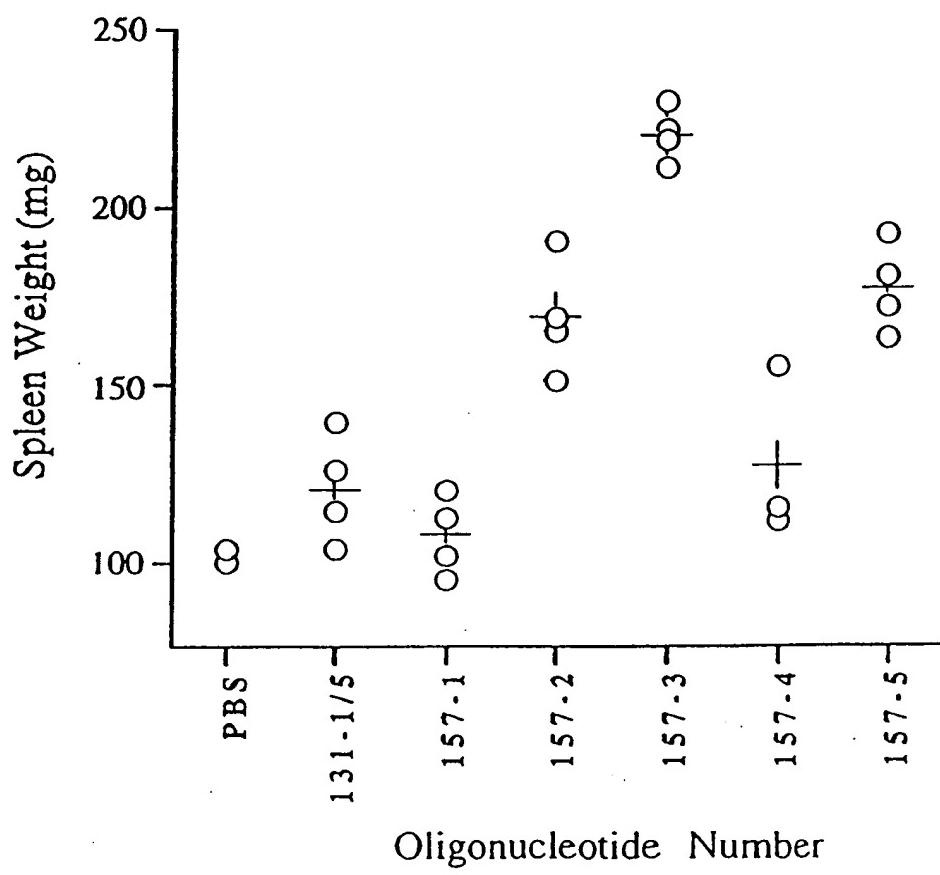


FIG. 10B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCCTCTGT-3'
SEQ ID NO.: 48 159-1	5'-CTATCTGACXTTCTCTGT-3'
SEQ ID NO.: 49 159-2	5'-CTATCTGAXGTTCTCTGT-3'
SEQ ID NO.: 50 159-3	5'-CTATXTGACGTTCTXTGT-3'
SEQ ID NO.: 51 159-4	5'-CTATCTGACGTTCTXTGT-3'
SEQ ID NO.: 8 133-1	5'-CCTACTAGCGTTCTCATC-3'
SEQ ID NO.: 52 161-1	5'-CCTACTAGCXTTCTCATC-3'
SEQ ID NO.: 53 161-2	5'-CCTACTAGXGTTCTCATC-3'
SEQ ID NO.: 54 161-3	5'-CCTACTAXCGTTCTCATC-3'
SEQ ID NO.: 55 161-4	5'-CCTACTAGCGTTCTXATC-3'
SEQ ID NO.: 56 161-5	5'-CCTACTAGCGTTCTXATC-3'

FIG. 11A

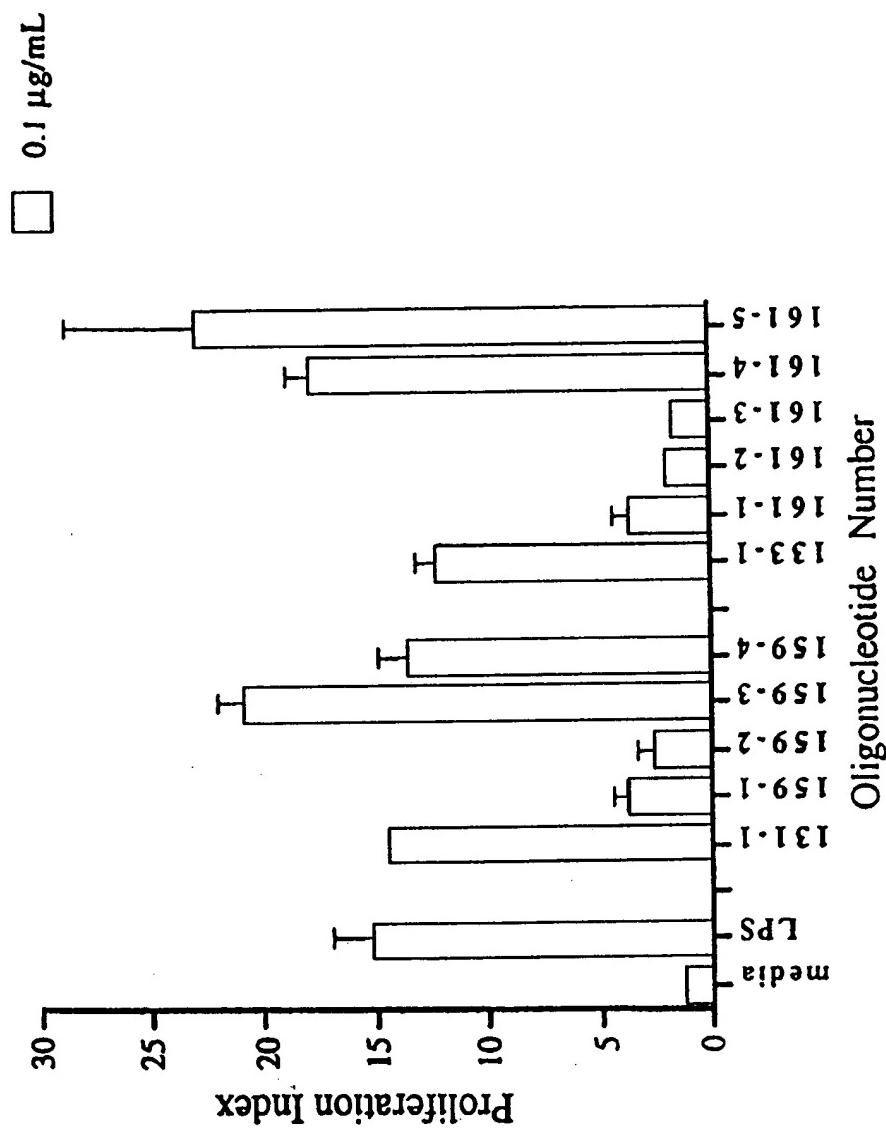


FIG. 11B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 48 159-1	5'-CTATCTGACXTTCTCTGT-3'
SEQ ID NO.: 49 159-2	5'-CTATCTGAXGTTCTCTGT-3'
SEQ ID NO.: 50 159-3	5'-CTATXTGACGTTCTXTGT-3'
SEQ ID NO.: 51 159-4	5'-CTATCTGACGTTCTXTGT-3'
SEQ ID NO.: 8 133-1	5'-CCTACTAGCGTTCTCATC-3'
SEQ ID NO.: 52 161-1	5'-CCTACTAGCXTTCTCATC-3'
SEQ ID NO.: 53 161-2	5'-CCTACTAGXGTTCTCATC-3'
SEQ ID NO.: 54 161-3	5'-CCTACTAXCGTTCTCATC-3'
SEQ ID NO.: 55 161-4	5'-CCTAXTAGCGTTCTCATC-3'
SEQ ID NO.: 56 161-5	5'-CCTACTAGCGTTCTXATC-3'

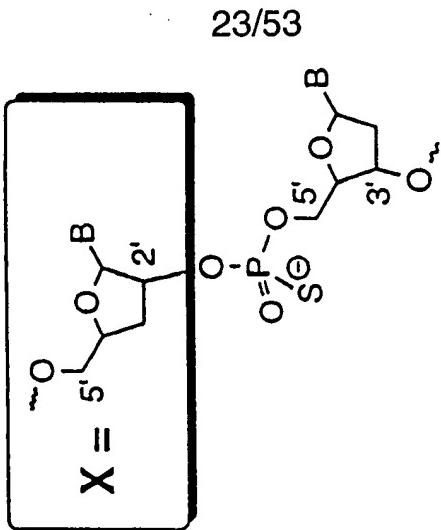


FIG. 12A

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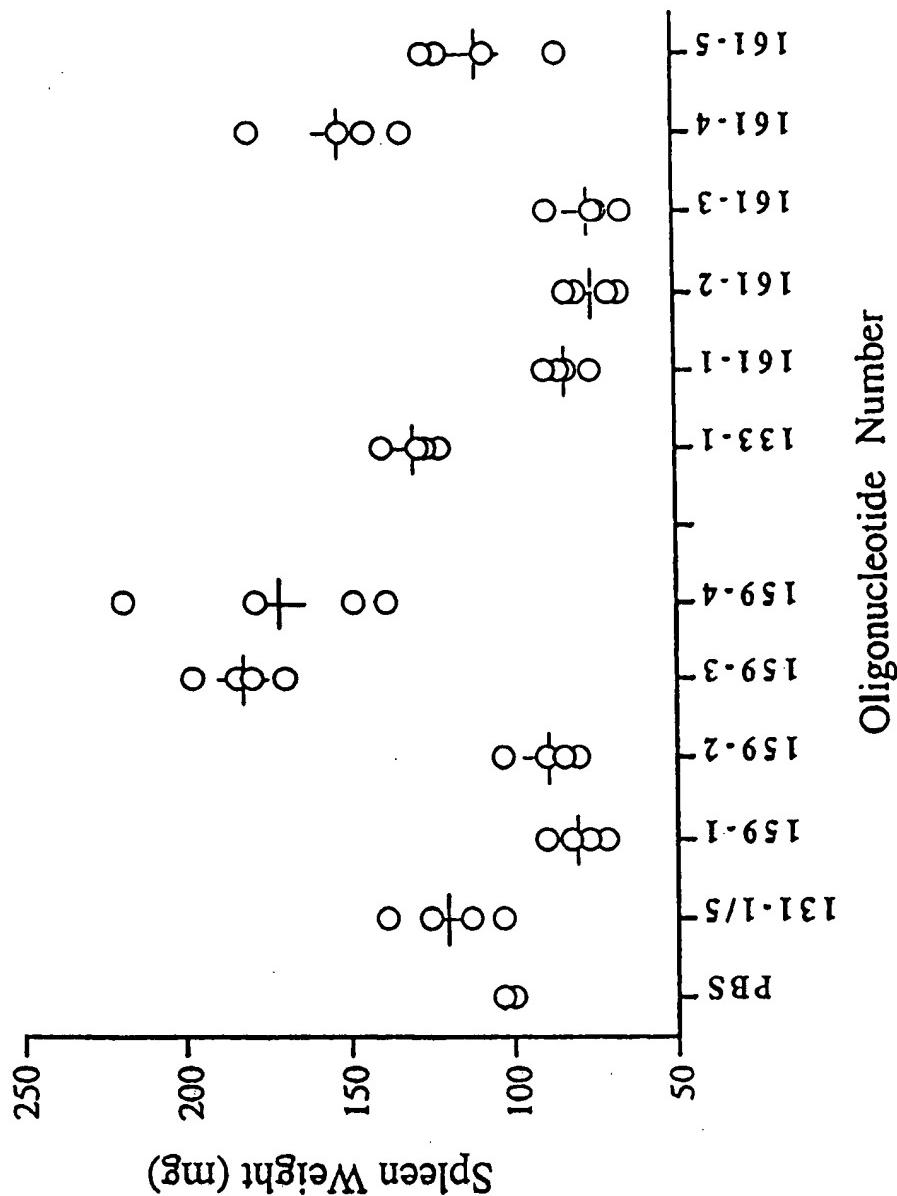
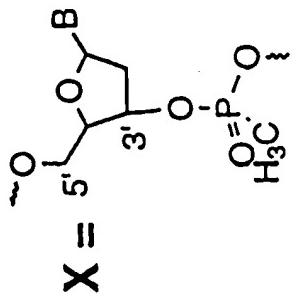


FIG. 12B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 1      131-1	5'-CTATCTGACGGTCTCTGT-3'
SEQ ID NO.: 57     167-1	5'-CTATCTGXCGTTCTCTGT-3'
SEQ ID NO.: 58     167-2	5'-CTATCTXACGGTCTCTGT-3'
SEQ ID NO.: 59     167-3	5'-CTATCXGACGGTCTCTGT-3'
SEQ ID NO.: 60     167-4	5'-CTATXTGACGGTCTCTGT-3'
SEQ ID NO.: 61     167-5	5'-CTAXCTGACGGTCTCTGT-3'
SEQ ID NO.: 62     167-6	5'-CTXXCTGACGGTCTCTGT-3'
SEQ ID NO.: 63     167-7	5'-CTATCTGACGGXTCTCTGT-3'
SEQ ID NO.: 64     167-8	5'-CTATCTGACGGTXCTCTGT-3'
SEQ ID NO.: 65     167-9	5'-CTATCTGACGGTXXCTGT-3'
SEQ ID NO.: 66     167-10	5'-CTATCTGACGGTCXCTGT-3'
SEQ ID NO.: 67     16711	5'-CTATCTGACGGTCTXTGT-3'
SEQ ID NO.: 68     167-12	5'-CTATCTGACGGTCTXXGT-3'



Methyl-phosphonate

FIG. 13A

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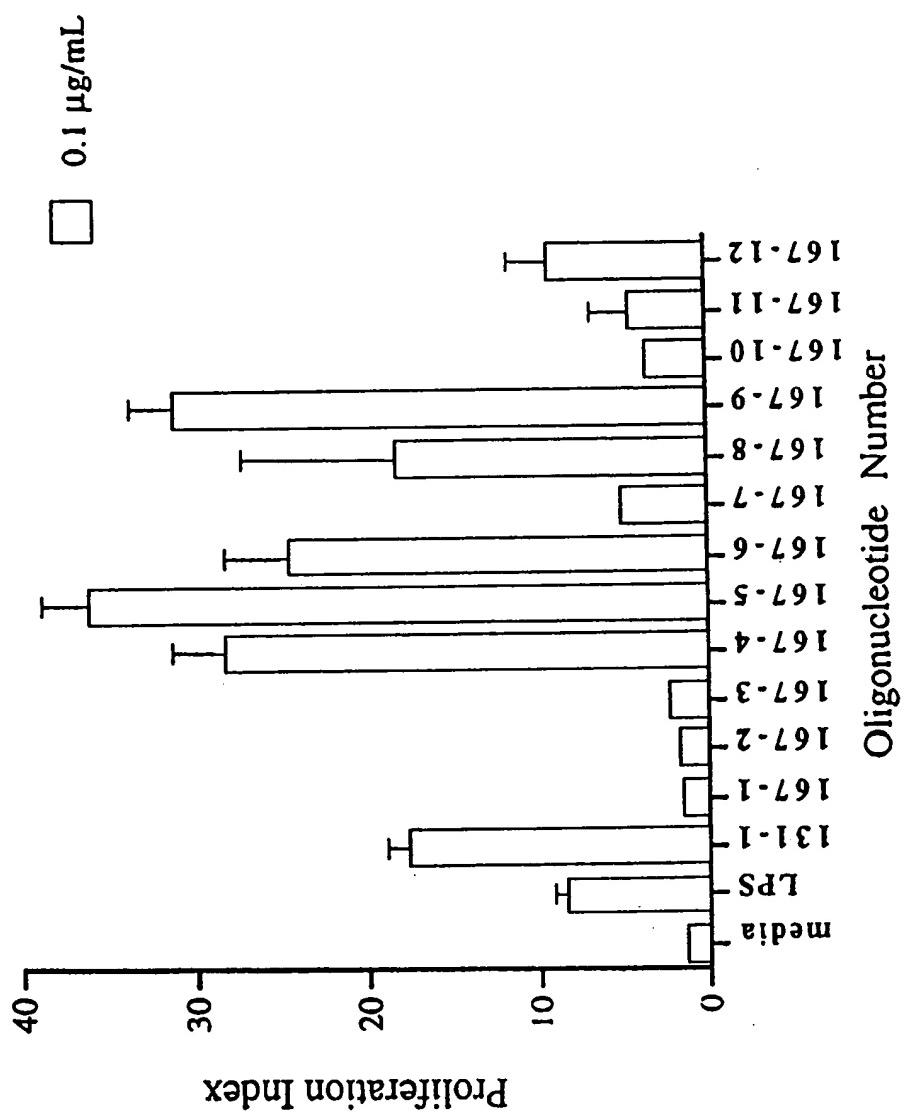


FIG. 13B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGGTCTCTGT-3'
SEQ ID NO.: 57 167-1	5'-CTATCTGXCGTTCTCTGT-3'
SEQ ID NO.: 58 167-2	5'-CTATCTXACGGTCTCTGT-3'
SEQ ID NO.: 59 167-3	5'-CTATCXGACGGTCTCTGT-3'
SEQ ID NO.: 60 167-4	5'-CTATXTGACGGTCTCTGT-3'
SEQ ID NO.: 61 167-5	5'-CTAXCTGACGGTCTCTGT-3'
SEQ ID NO.: 62 167-6	5'-CTXXCTGACGGTCTCTGT-3'
SEQ ID NO.: 63 167-7	5'-CTATCTGACGXCTCTGT-3'
SEQ ID NO.: 64 167-8	5'-CTATCTGACGTXCTCTGT-3'
SEQ ID NO.: 65 167-9	5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 66 167-10	5'-CTATCTGACGGTCTCTGT-3'
SEQ ID NO.: 67 16711	5'-CTATCTGACGGTCTXTGT-3'
SEQ ID NO.: 68 167-12	5'-CTATCTGACGGTCTXXGT-3'

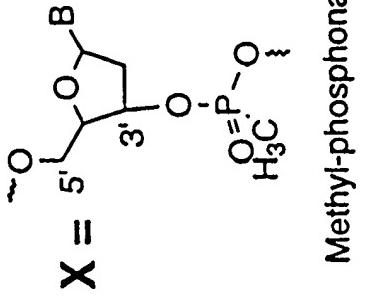


FIG. 14A

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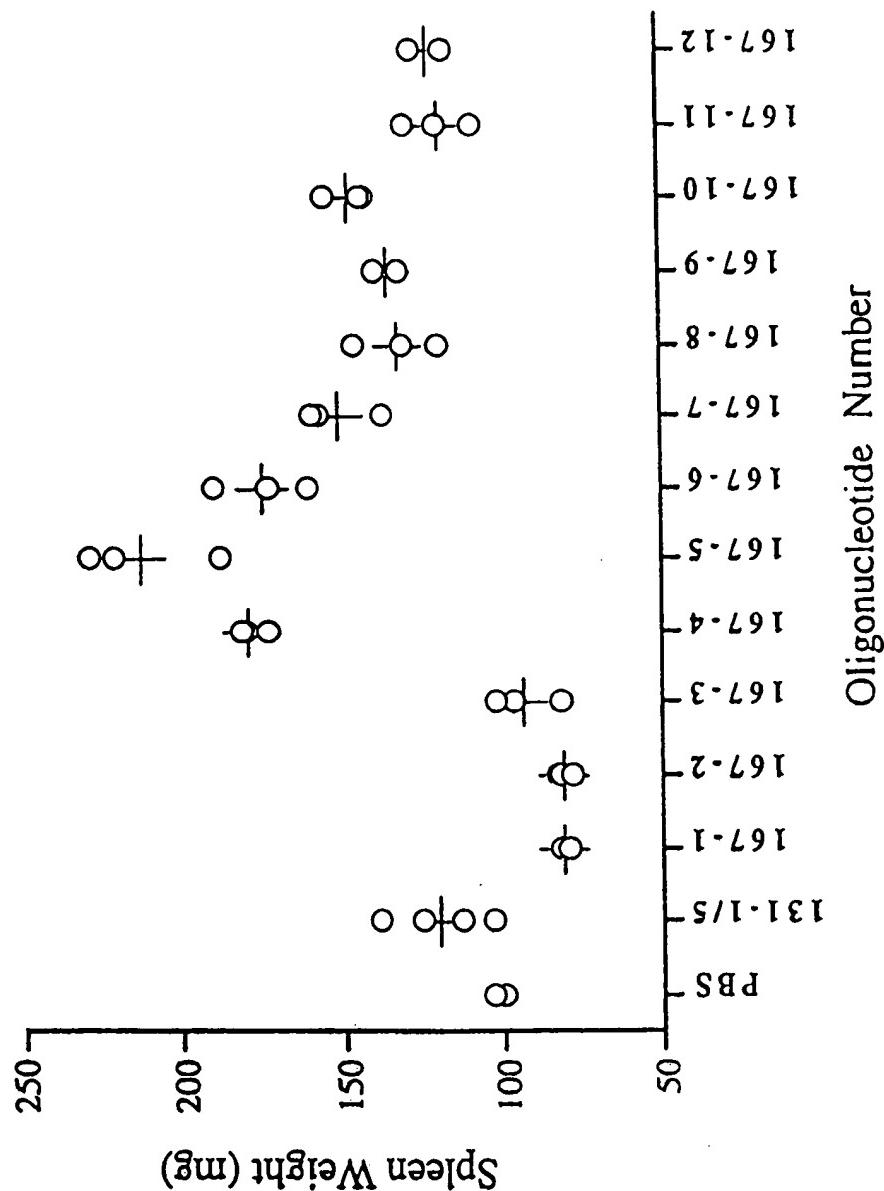


FIG. 14B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 69 113-1	5'-TCCATGACGTTCTGATGC-3' 
SEQ ID NO.: 70 23-1	5'-TCCATGXCGTTCTGATGC-3'
SEQ ID NO.: 71 23-3	5'-TCCAXGACGTTCTGATGC-3'
SEQ ID NO.: 72 29-2	5'-TXYATGACGGTCTGATGC-3' 

R<sub>X</sub> = 2'-O-Methylribonucleoside  
R<sub>Y</sub> = 2'-O-Methoxyethoxyribonucleoside

FIG. 15A

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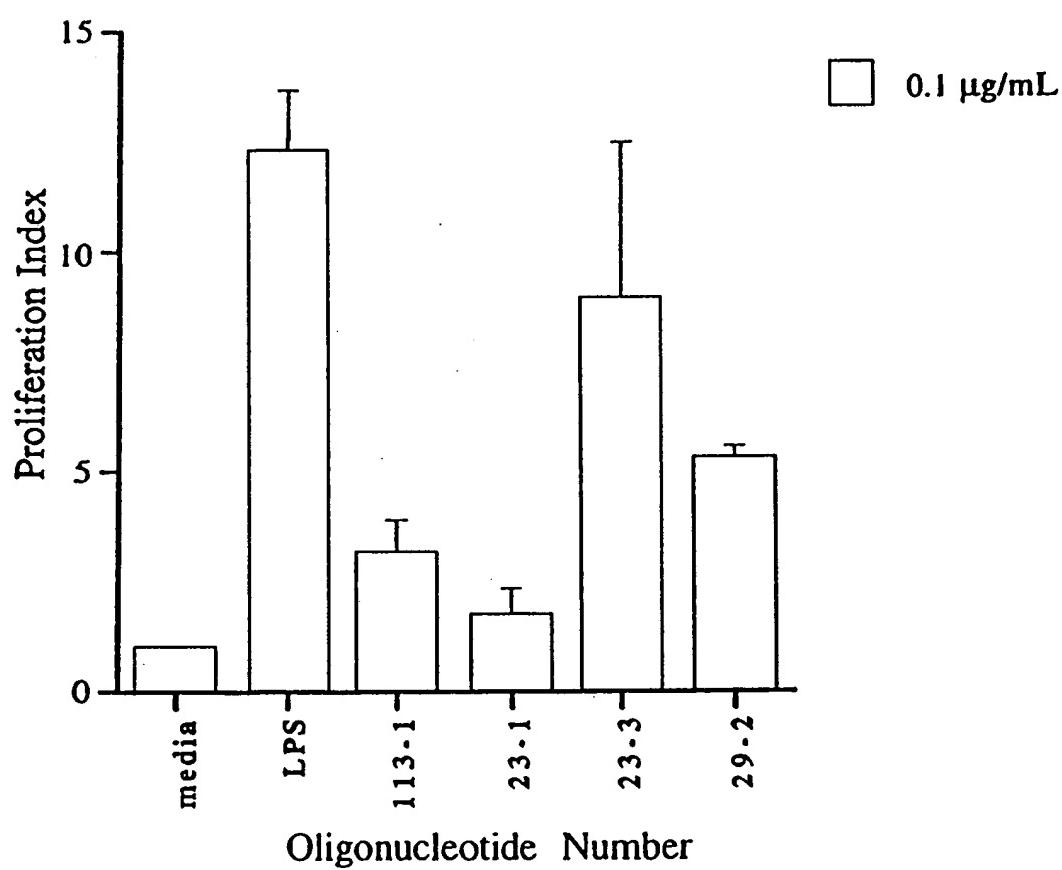
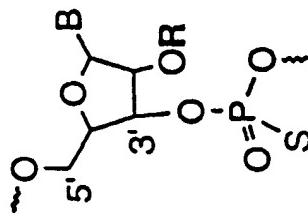


FIG. 15B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 69	113-1 5'-TCCATGACGGTCCTGATGC-3'
SEQ ID NO.: 70	23-1 5'-TCCATGXCGTTCCCTGATGC-3'
SEQ ID NO.: 71	23-3 5'-TCCAXGACGGTCCTGATGC-3'
SEQ ID NO.: 72	29-2 5'-TYYATGACGGTCCTGATGC-3'



$R_x = 2'$ -O-Methylribonucleoside  
 $R_y = 2'$ -O-Methoxyethoxyribonucleoside

FIG. 16A

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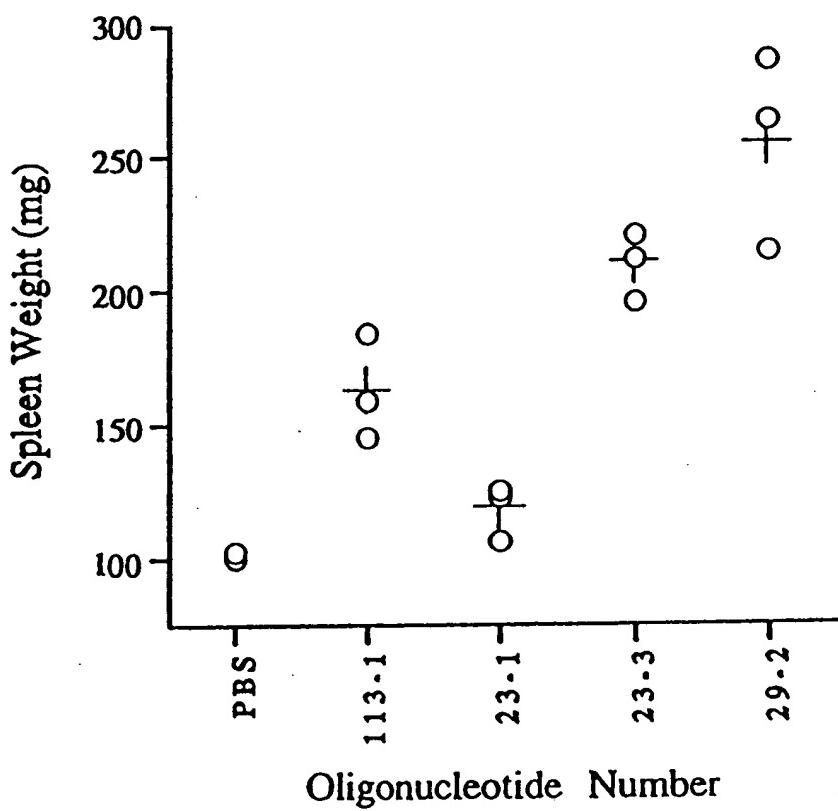


FIG. 16B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 73 1	5'-G A G A A C G C T C G A C C T T-3' ↑ 5'-G A G A A C G C T C G A C C T T-3' ↑
SEQ ID NO.: 74 2	3'-T T C C A G C T C G C A A G A G-5' ↑ 5'-G A G A A C G C T C G A C C T T-3' ↑
SEQ ID NO.: 75 3	5'-T C T C C A G C G T G C G C C A T-3' ↑ 5'-T C C C A G C G T G C G C C A T-3' ↑
SEQ ID NO.: 76 4	3'-T A C C G C G T G C G A C C C T-5' ↑ 5'-T C C C A G C G T G C G A C C C T-5' ↑
SEQ ID NO.: 77 5	5'-T C T C C A G C G T G C G C C A T-3' ↑ 5'-T C C C A G C G T G C G C C A T-3' ↑
SEQ ID NO.: 78 6	3'-T A C C G C G T G C G A C C C T-5' ↑ 5'-T C C C A G C G T G C G A C C C T-5' ↑
SEQ ID NO.: 79 7	3'-T A C C G C G T G C G A C C C T-5' ↑ 5'-T C C C A G C G T G C G A C C C T-5' ↑
SEQ ID NO.: 80 8	3'-T A C C G C G T G C G A C C C T-5' ↑ 5'-T C C C A G C G T G C G A C C C T-5' ↑

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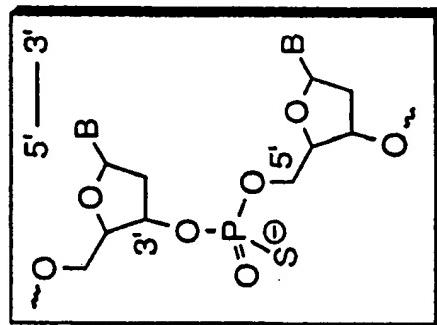
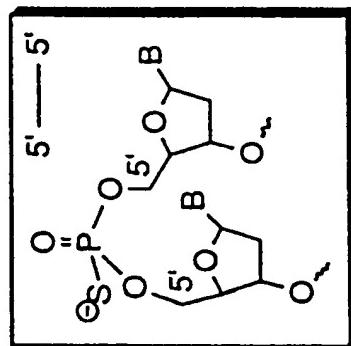
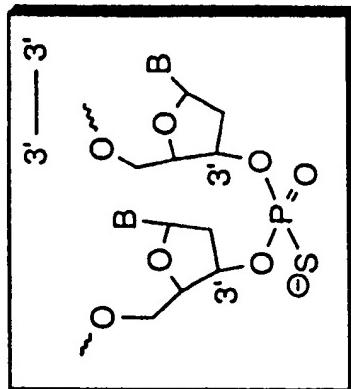


FIG. 17B

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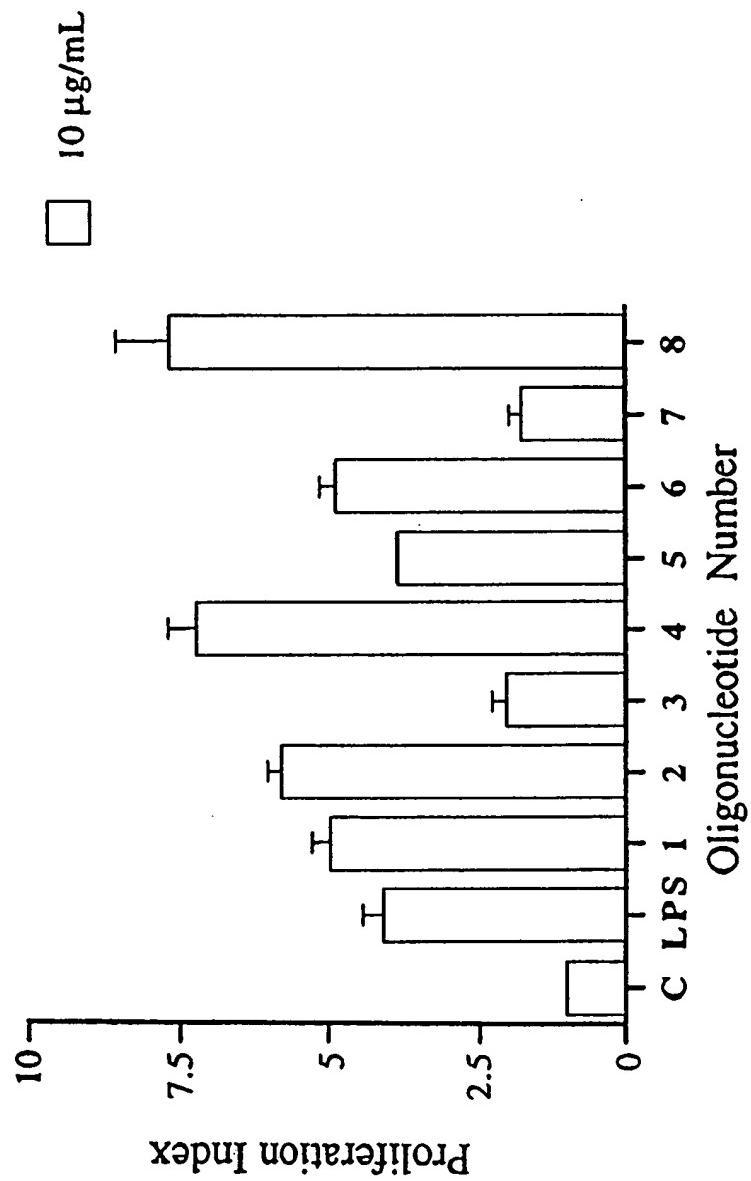


FIG. 17C

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 81 175-1	5'-CTATXTGACGTTCTCTGT-3'
SEQ ID NO.: 82 175-2	5'-CTATCTGACGTTCXCTGT-3'
SEQ ID NO.: 83 175-3	5'-CTAXXTGACGTTCTCTGT-3'
SEQ ID NO.: 84 175-4	5'-CTATCTGACGTTCXXTGT-3'
SEQ ID NO.: 85 175-5	5'-CTATCTGAXXTTCTCTGT-3'
SEQ ID NO.: 86 175-6	5'-CTATCTXACGTTCTCTGT-3'
SEQ ID NO.: 87 175-7	5'-CTATCTGACGTXCTCTGT-3'
SEQ ID NO.: 88 175-9	5'-CTATCTGACGTTCTCTGT-3' (all-β-L-DNA/PS)

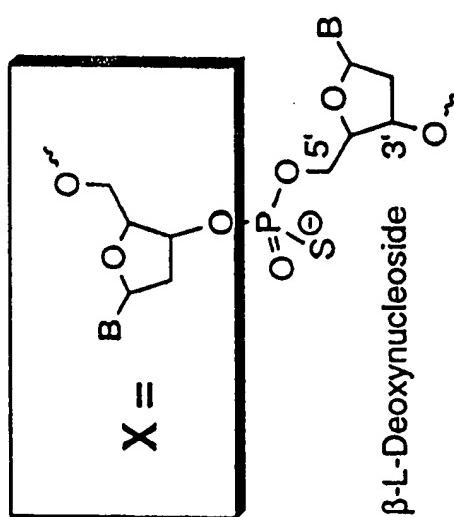


FIG. 18A

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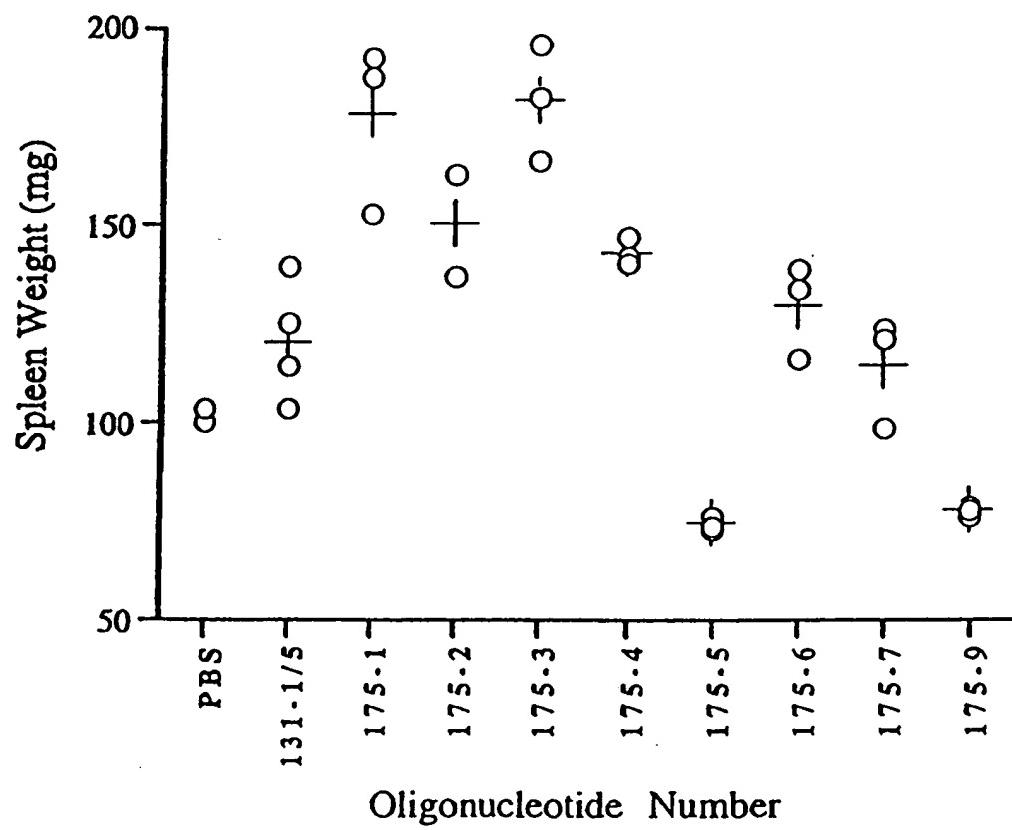


FIG. 18B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

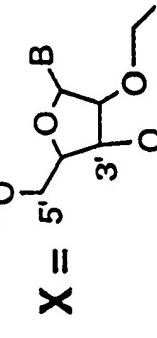
Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCTCTGT-3'  X = 
SEQ ID NO.: 89 173-1	5'-CTATXTGACGTTCTCTGT-3'
SEQ ID NO.: 90 173-2	5'-CTATCTGACGTTCTXTGT-3'  2'-O-Propenyl-ribonucleoside

FIG. 19A

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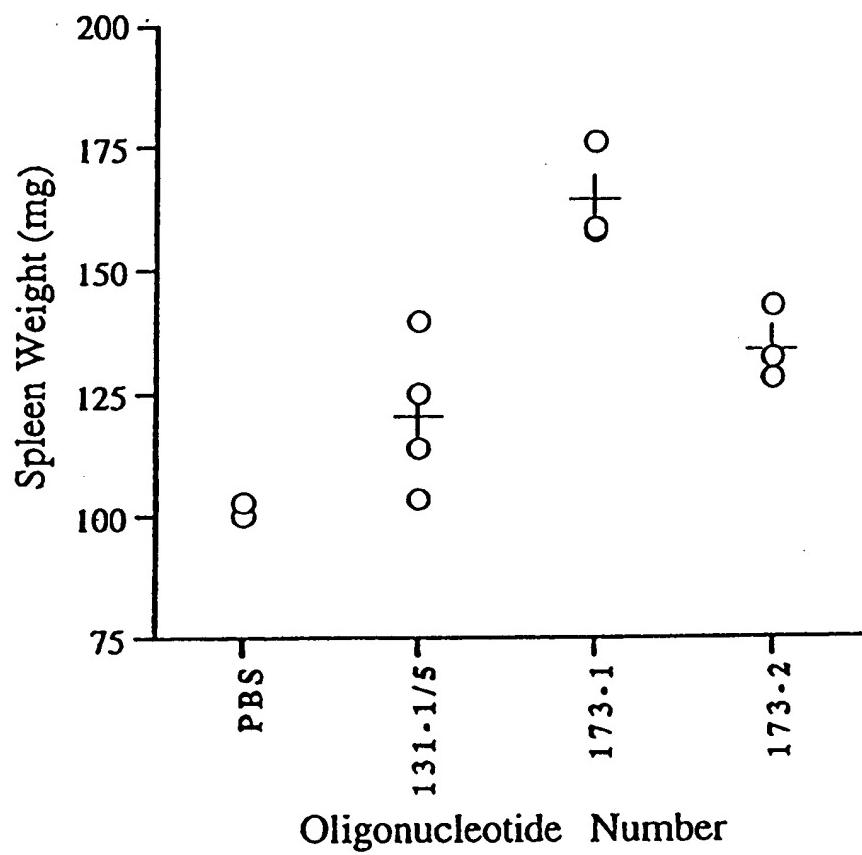


FIG. 19B

## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
SEQ ID NO.: 8	133-1 5'-CCTACTAGCGTTCTCATC-3'
SEQ ID NO.: 91	143-1 5'-CCTXTAGCGTTCTCATC-3'
SEQ ID NO.: 92	143-2 5'-CCTYTAGCGTTCTCATC-3'
SEQ ID NO.: 93	143-3 5'-CCTZZTAGCGTTCTCATC-3'
SEQ ID NO.: 94	143-4 5'-CCTXTAGCGTVCTCATC-3'
SEQ ID NO.: 95	143-5 5'-CCTACTAG <u>G</u> TCTCATC-3'

X = 1',2'-Dideoxyribose  
Y = C3-Linker  
Z = 3'-OMe  
V = 2'-OMe

FIG. 20A

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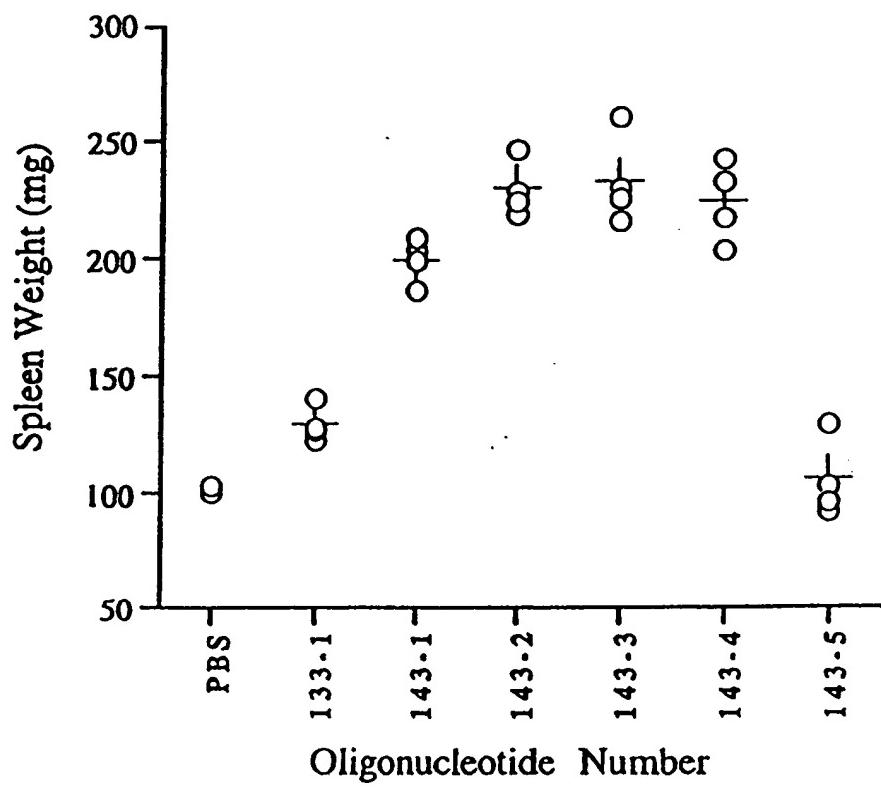


FIG. 20B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
SEQ ID NO.: 1 1	5'-CTATCTGAC <u>GTTCTCTGT</u> -3' (131-1)
SEQ ID NO.: 96 2	5'-CTATCTGAC <u>G</u> * <u>TTCTCTGT</u> -3' (E 633L)
SEQ ID NO.: 97 3	5'-CTATCTGAG <u>G</u> * <u>TTCTCTGT</u> -3' (E 636)
SEQ ID NO.: 98 4	5'-TCTCCCAG <u>CGTGC</u> CCAT-3'
SEQ ID NO.: 99 5	5'-TCTCCCAG <u>CG</u> * <u>TGCG</u> *CCAT-3' (E 603)
SEQ ID NO.: 100 6	5'-CTATXTGAC <u>G</u> * <u>TTCTCTGT</u> -3' (E 639L)

FIG. 21A

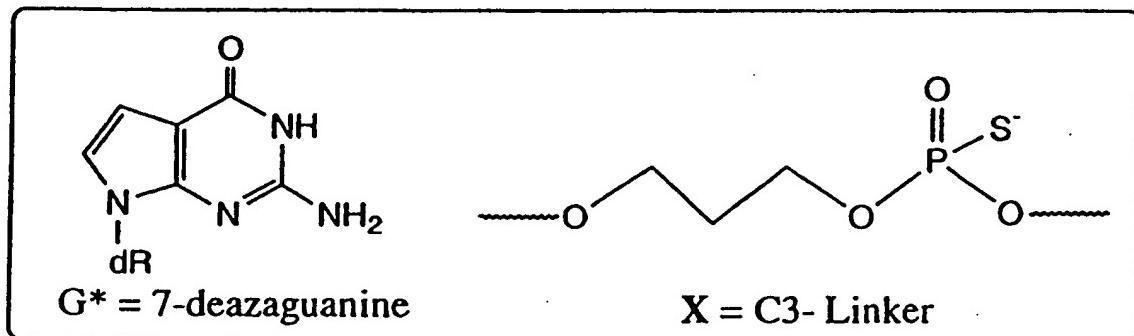


FIG. 21B

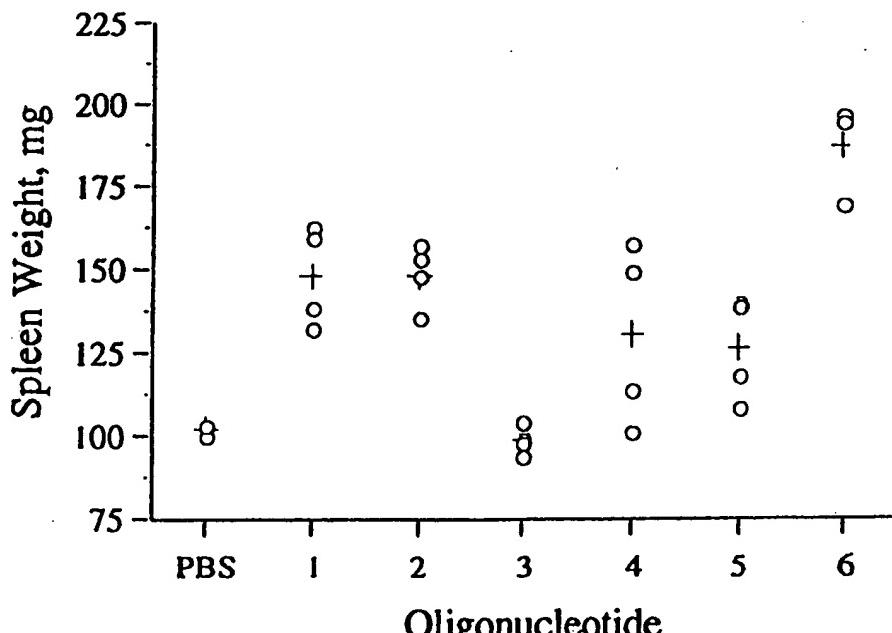
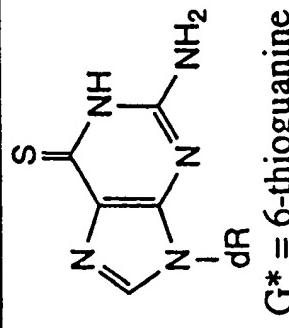


FIG. 21C

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGAC <u>G</u> TCTCTGT-3' (131-1)
SEQ ID NO.: 101	5'-CTATCTGAC <u>G*</u> TTCTCTGT-3' (E 682)
SEQ ID NO.: 102	5'-CTATCTGAG <u>C</u> TTCTCTGT-3' (E 683)



dr  
G\* = 6-thioguanine

FIG. 22A

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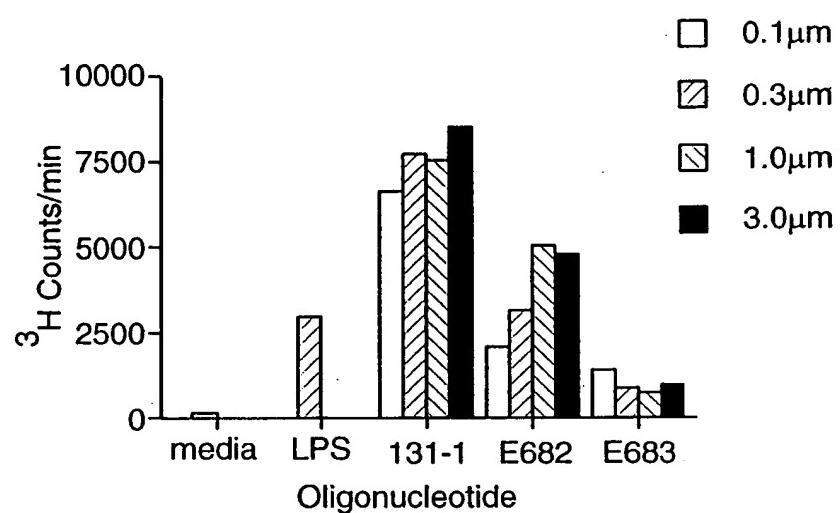


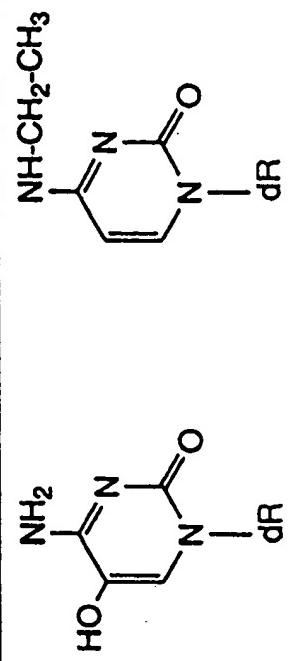
FIG. 22B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Oligo No. Sequence & Modification*

SEQ ID NO.: 1	1	5'-CTATCTGAC <u>G</u> TTC <u>T</u> C <u>T</u> GT-3'
SEQ ID NO.: 2	2	5'-CTATCTGAC <u>G</u> T <u>T</u> C <u>T</u> GT <u>T</u> GT-3'
SEQ ID NO.: 3	3	5'-CTATCTGAC <u>ACC</u> *T <u>T</u> C <u>T</u> GT <u>T</u> GT-3'
SEQ ID NO.: 4	4	5'-CTATCTGAC**G <u>T</u> T <u>C</u> T <u>T</u> GT <u>T</u> GT-3'
SEQ ID NO.: 5	5	5'-CTATCTGAC <u>ACC</u> *T <u>T</u> C <u>T</u> GT <u>T</u> GT-3'



C\* = 5-hydroxy-cytosine C\*\* = N4-ethyl-cytosine

FIG. 23A

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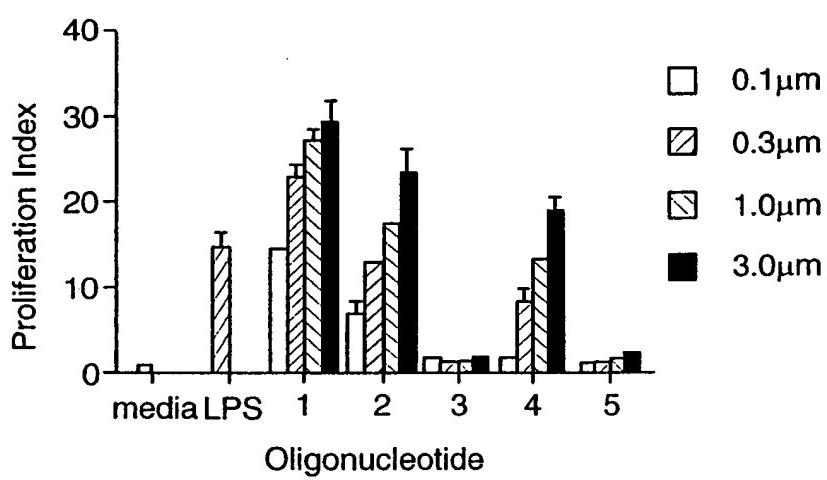


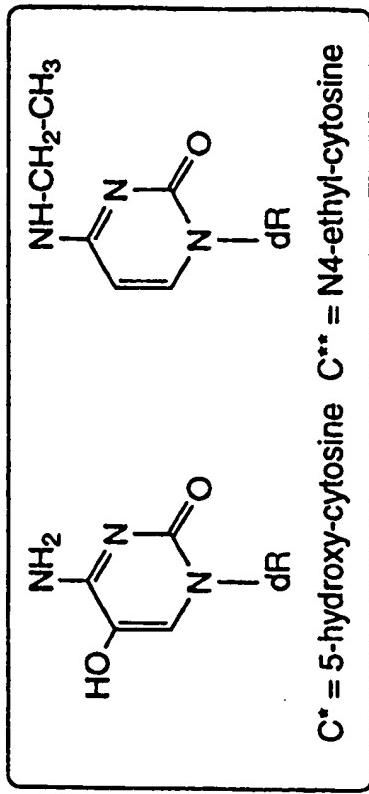
FIG. 23B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

## Oligo No. Sequence &amp; Modification

SEQ ID NO.: 1 1 5'-CTATCTGACGGTCTCTGT-3'  
SEQ ID NO.: 2 2 5'-CTATCTGACGTCTCTGT-3'  
SEQ ID NO.: 3 3 5'-CTATCTGACCC\*TTCCTCTGT-3'  
SEQ ID NO.: 4 4 5'-CTATCTGAC\*\*GTCTCTGT-3'  
SEQ ID NO.: 5 5 5'-CTATCTGACCC\*TTCTCTGT-3'



C\* = 5-hydroxy-cytosine C\*\* = N4-ethyl-cytosine

FIG. 24A

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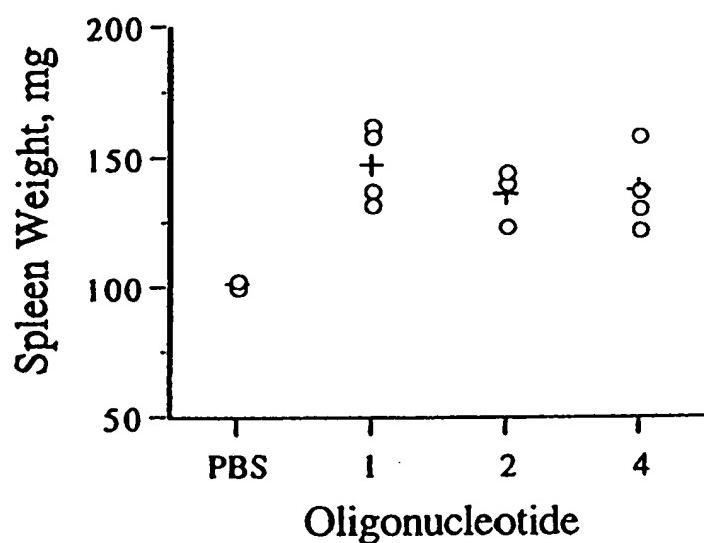


FIG. 24B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.	Sequence & Modification
SEQ ID NO.: 1	5'-CTATCTGAC <u>G</u> GTCTCTGT-3'
SEQ ID NO.: 111	5'-CTATCTGAC <u>G</u> TCTCTGT-3'
SEQ ID NO.: 112	5'-CTATCTGAC <u>CC*</u> TCCTCTGT-3' C* = Ara-C

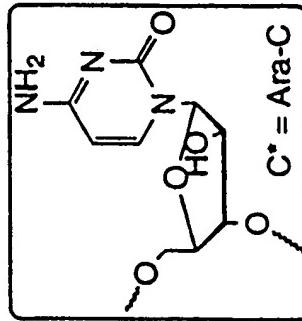


FIG. 25A

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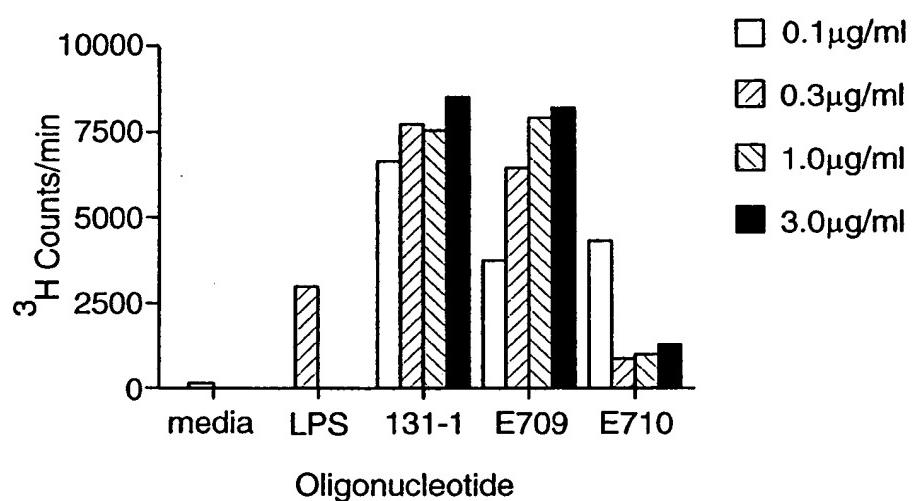


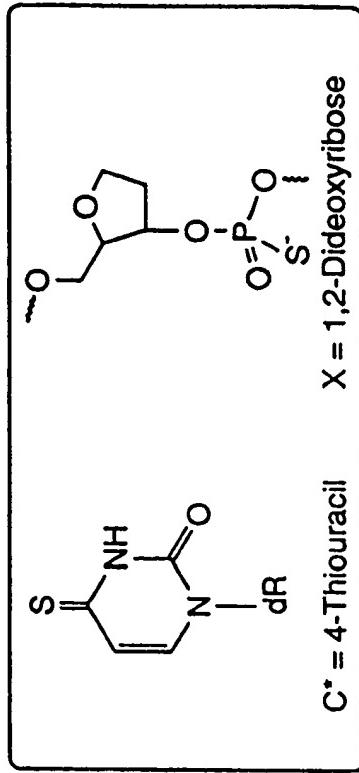
FIG. 25B

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## OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No. Sequence & Modification

SEQ ID NO.: 1 1 5'-CTATCTGACGTCTCTGT-3' (131-1)  
SEQ ID NO.: 103 2 5'-CTATCTGACGTTCCTCTGT-3' (E 647)  
SEQ ID NO.: 104 3 5'-CTATXTGACCGTTCCTCTGT-3' (E 653)



C\* = 4-Thiouracil      X = 1,2-Dideoxyribose

FIG. 26A

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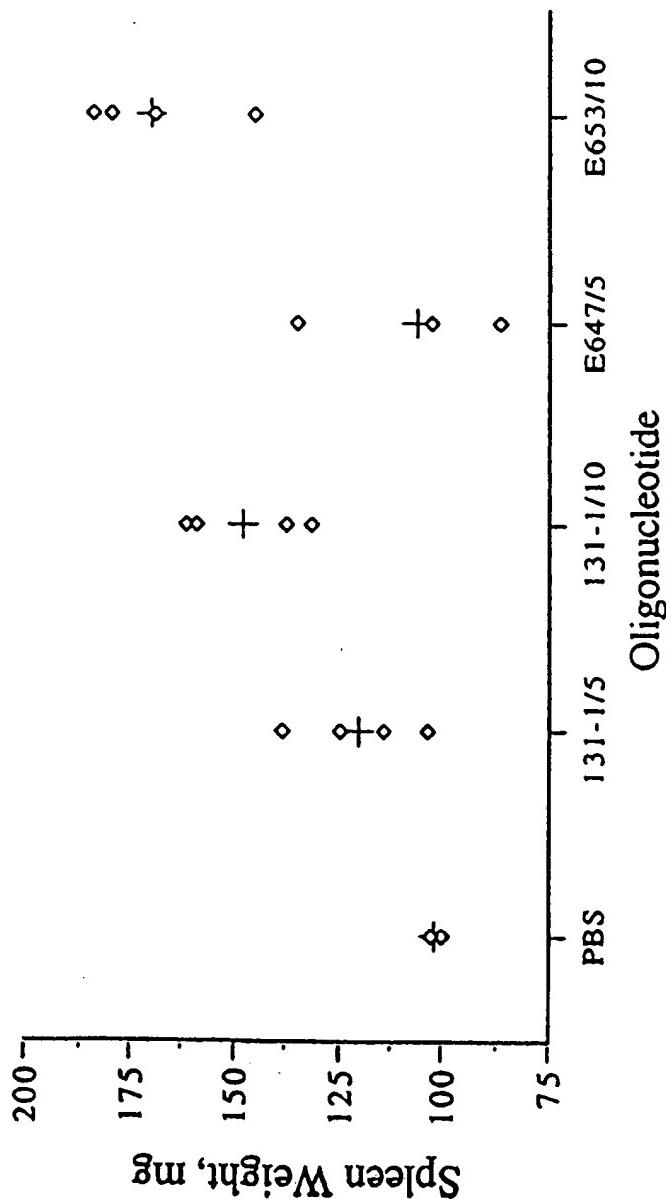


FIG. 26B

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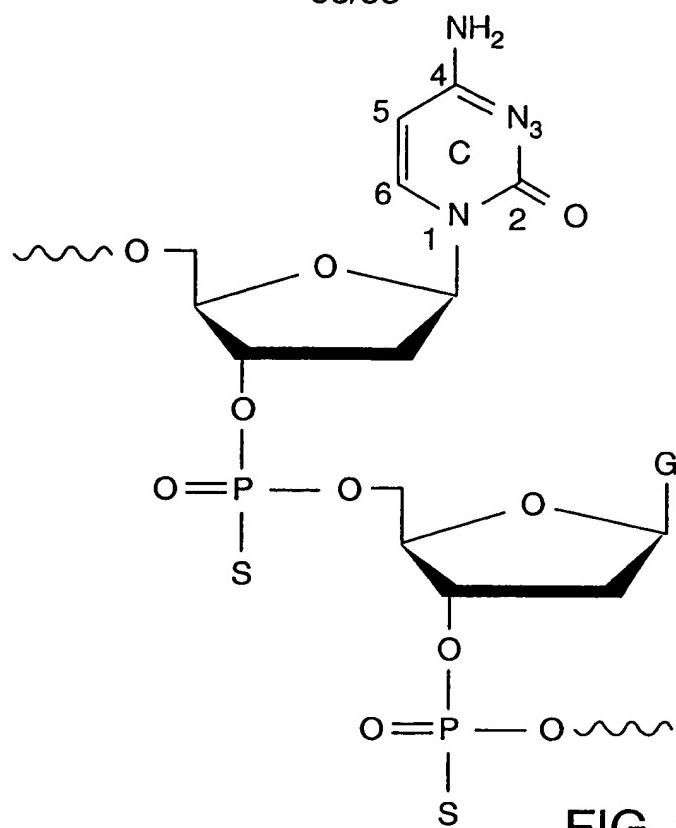
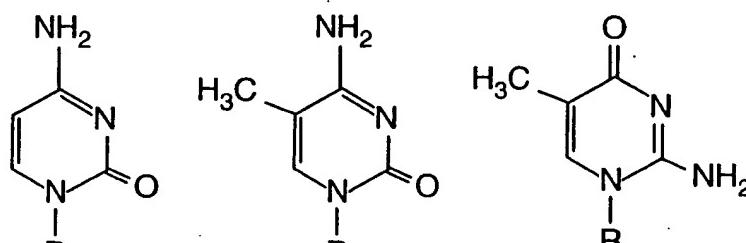


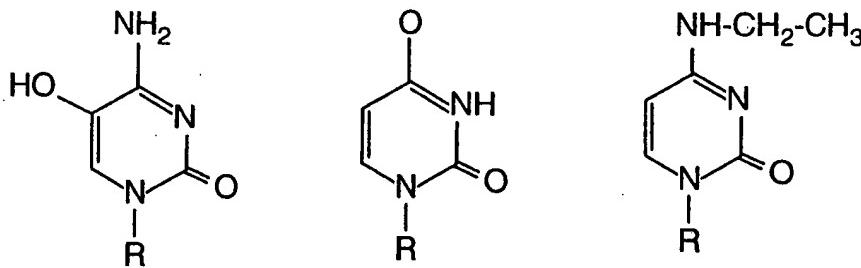
FIG. 27



1

2

3



4

5

6

FIG. 28